

Understanding contamination risk associated with protein fortified foods

Cox, Gregory Roland; O'Bryan, Kerry

Licence:
CC BY-NC-ND

[Link to output in Bond University research repository.](#)

Recommended citation(APA):
Cox, G. R., & O'Bryan, K. (2021). *Understanding contamination risk associated with protein fortified foods*. Sports Dietitians Australia Conference 2021, Australia.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

For more information, or if you believe that this document breaches copyright, please contact the Bond University research repository coordinator.



Understanding contamination risk associated with protein fortified foods

Kerry O'Bryan¹

Greg Shaw⁴

Bethanie Allanson⁵

Larissa Trease³

Gary Slater²

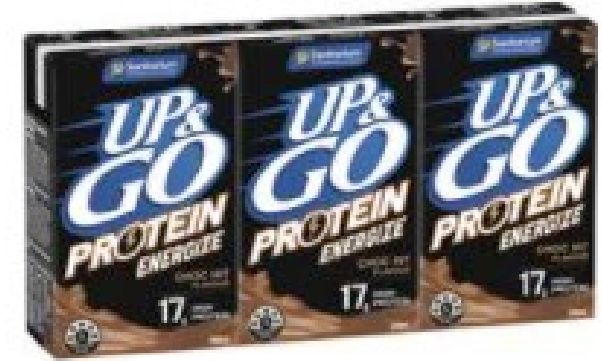
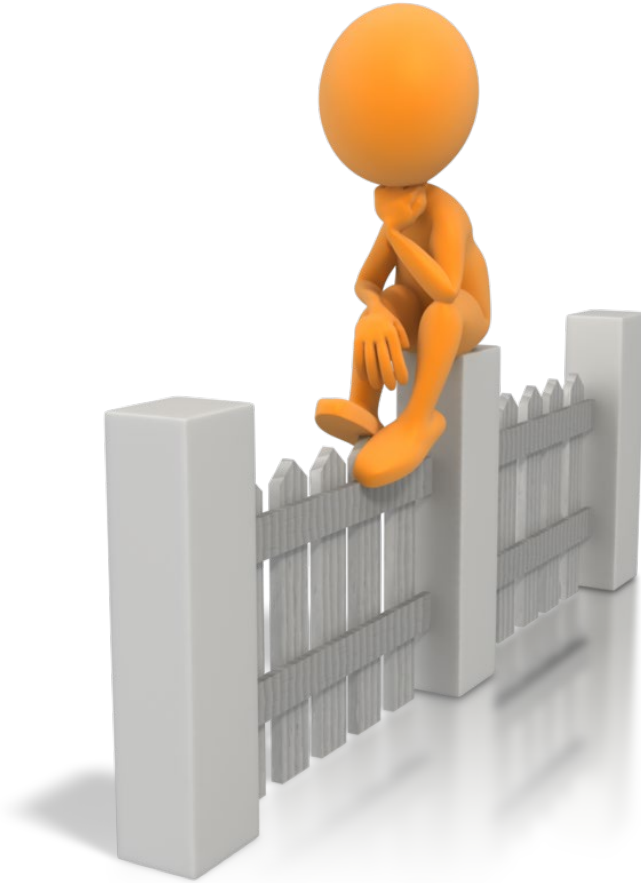
Greg Cox¹

Affiliations

1. Faculty of Health Sciences and Medicine, Bond University, Gold Coast, Australia
2. Australian Institute of Sport, Canberra, Australia
3. Sport Integrity Australia, Canberra, Australia
4. Swimming Australia, High performance Unit, Brisbane, Australia
5. Western Australian Cricket Association, Perth, Australia



To recommend a PFF or not?



Food Categories – Protein penetration

- ✓ Breakfast foods
- ✓ Snacks
- ✓ Dairy / Dairy free
- ✓ Health foods
- ✓ Bakery
- ✓ Frozen meals



Project Aim



- The project objective was to explore, evaluate and understand the risk of PFFs manufactured within Australia and readily available to athletes.



For clarity - Definitions

Isolated protein ingredient – concentrated single or blended protein sources, of animal or plant origin, used in the manufacturing of fortified foods and protein supplements.

Protein supplement – formulated consumer ready dried powder, bar or shake, high protein Sports Food/Fluid with one or more isolated protein ingredients with/without the addition of other active ingredients (i.e. carbohydrate, fat, individual amino acids, creatine, caffeine, beta-alanine) and with non-functional ingredients (i.e. flavourings, sweeteners, thickeners), regulated by FSANZ Code (Standard 2.9.4 - 'Formulated supplementary sports foods').

Protein fortified food (PFF) – any human food with one or more isolated protein ingredients listed on the product label that is manufactured within the general 'Chapter 2: Food standards', **excluding** foods produced under Standard 2.9.4'.

Methods

NSO
Supplement
Policy



Findings

NSO Supplement Policy



NSO Supplement Policy review

- Only 2/20 policies acknowledged PFFs & potential contamination risks
- AIS Supplement framework does not currently address PFF use by athletes

Sports Dietitian survey

- Nearly all SD's recommend Pro & multi-ingredient supps, only 2 in 5 recommend PFFs
- SD's felt inadequately educated on the 'real' risk of contamination associated with PFFs

Athlete workshops

- Athletes were unable to correctly identify PFFs
 - heavily reliant on the front label displaying 'Protein'
- Inclusion of 'protein' on the label appears to create confusion amongst athletes regarding PFFs
- 45% of athletes felt hemp protein provided more risk

Findings



Food Industry insights

- *Allergen and biological contamination* protocols are well established in food manufacturing
- The dairy industry is governed by additional regulation due to microbial risks (botulism)

Supermarket audit

- 93% of PFFs audited make a “Protein” claim on the label
- Most PFFs have 1-2 isolated proteins, higher protein bars (supplements) contained up to 7

Independent sports drug testing laboratory

- Minimal testing of PFFs (mainly protein bars)
- Don't test hemp products due to the high likelihood of containing detectable levels of THC & other cannabinoids

Café survey (n=57)

- 25 Cafés used protein powders
 - None were able to specify the source
- 4 Cafés reported adding other functional ingredients/supplements

Key recommendations

- ✓ PFFs **commercially manufactured** within Australia under FSANZ present **no additional risk** of containing WADA prohibited substances than other processed foods with mixed ingredients.
- ✓ PFFs **store-prepared by cafes and food outlets** that contain unidentified ingredients provide unknown risk. Further, some PFFs are difficult to differentiate from protein supplements. Athletes should undertake risk management strategies ahead of consuming these products.
- ✓ Hemp protein has a risk of containing traces of THC and other cannabinoids inherent to the raw plant source. **Hemp protein** containing PFFs and supplements should be avoided by athletes.



UNDERSTANDING CONTAMINATION RISK ASSOCIATED WITH PROTEIN FORTIFIED FOODS

Review authors

Kerry R. O'Brien,¹
Gregory Shaw,⁴
Bathanie Allanson⁵
Larissa Trease³
Gary Slater,² PhD
Gregory R Cox,¹ PhD

Affiliations

1. Faculty of Health Sciences and Medicine, Bond University, Gold Coast, Australia
2. Australian Institute of Sport, Canberra, Australia
3. Sport Integrity Australia, Canberra, Australia
4. Swimming Australia, High performance Unit, Brisbane, Australia
5. Western Australian Cricket Association, Perth, Australia

Corresponding author

Kerry R. O'Brien, kobryan@bond.edu.au
Faculty of Health Sciences and Medicine, Bond University,
14 University Drive, Robina, Queensland 4226, Australia

PROTEIN FORTIFIED FOOD

A study conducted by the AIS, Sport Australia and Sport Integrity Australia has found that commercially manufactured 'Protein Fortified Foods' (PFF) present no additional risk of containing substances banned in sport than other processed foods. This is the result of high quality food manufacturing standards in Australia.

However, some shops or cafes prepare and sell protein fortified foods that contain unidentified protein ingredients or added botanical ingredients (such as Maca powder) and as such are higher risk PFFs. PFFs containing hemp protein ingredients may contain trace amounts of the banned substance Tetrahydrocannabinol (THC) and should be avoided by athletes.

LOW RISK PFFs



Breakfast foods (cereals)

Weet-bix Protein
Uncle Toby's Oats Super Blends Protein
Uncle Toby's Breakfast Bakes



Cereal/nut bar

Carman's Gourmet Protein Bar
Nice & Natural Protein Nut Bar



Bakery

Green's Protein Buttermilk Pancake Mix
The Healthy Baker Protein Muffin Mix



Dairy/dairy-free

Streets Blue Ribbon Protein Bar Ice-cream



Drinks

Up & Go Protein Energize



Frozen Foods

Super Nature Super Protein Wellness Bowl
Coles PerForm frozen meals



Batch-tested protein supplements*

Supplements listed on the Sport Integrity app

HIGH RISK PFFs



Foods from cafes/food outlets

Un-named Protein Balls
Smoothies with added Protein Powder



Foods with hemp ingredients

Macro Protein Muffin Banana & Chia



Foods with botanical ingredients

Crankt Protein Bar



Non-batch tested protein powders, pre-workouts*

Protein supplements, pre-work outs not listed on the Sport Integrity app

*Protein supplements are not PFFs but it can be hard to tell the difference. If the first ingredient listed on the product label is protein, it is likely considered a protein supplement. If you are unsure whether it's a PFF or a protein supplement (e.g. high protein bar) look for batch-tested options.

The examples above are a guide – if you have questions about the risk of any product, contact Sport Integrity Australia at 1300 027 232.



Questions to ask yourself

PFF or Protein Supplement
Café or store prepared
Contain botanicals or other ingredients
Contain any hemp derived ingredients





Higenamine BANNED by WADA!

prohibited
on)

have been
fed to the S1.b
dogena
usly at
affect the
e interpretation
nces is
ts

own as
as an example
id in dietary

S3 BETA-2-AGONISTS


- The reference to isomers was simplified.
- Examples of selective and non-selective beta-2-agonists were added (fenoterol, formoterol, higenamine, indacaterol, olodaterol, procaterol, reproterol, salbutamol, salmeterol, terbutaline, vilanterol).
- Higenamine is documented to be a constituent of the plant *Tinospora crispa*, which can be found in some dietary supplements and is a non-selective beta-2-agonist.
- During parameters of salbutamol were refined to make it clear that the 1000 µg/day should not be administered at one time.


TH FACTORS,
MULTIPL


- Studies are ongoing to establish an appropriate urinary threshold concentration for inhaled salmeterol. At

blog.PricePlow.com

6:57

SPORT INTEGRITY AUSTRALIA





CHECK A SUPPLEMENT

Before you buy a supplement, use this tool to help find a low-risk option.

START

